QUESTIONS EVOLUTION DOES NOT ANSWER

BY

JOHN F. HERGET

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Questions Evolution Does Not Answer

BY

JOHN F. HERGET

Minister Ninth Street Baptist Church
Cincinnati, O.

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SCIENCE consists of the body of well-ascertained and verified facts and laws of nature. It is clearly to be distinguished from the mass of theories, hypotheses and opinions which are of value in the progress of science.

—HENRY FAIRFIELD OSBORN,
In "The Origin and Evolution of Life."

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TO the blessed memory of my father and mother, whose guidance in childhood and youth led me to know and follow Christ, this little volume is affectionately dedicated.

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FOREWORD

THIS book is the result of a purpose to find out what facts have been discovered by scientists to support the theory of the evolution of organic life. I have tried to distinguish between the facts which they present and their deductions from those facts. Facts we should be willing to accept, and must accept, from whatever source, if we are honestly seeking the truth, but their philosophical opinions we have a full right to question.

The book, therefore, consists largely of quotations, and these are made, for the most part, from avowed advocates of the theory of evolution. If it shall prove to be of any help, especially to young

people, whose minds have been perplexed over the questions with which it deals, I shall feel amply repaid for the many hours spent in its preparation.

JOHN F. HERGET.

CINCINNATI, O., June, 1923.

I.

Evolution Defined and Described.

THERE is no definition or interpretation of evolution upon which there is general agreement among scientists, especially as to its scope, causes, factors, conditions and processes.

Le Conte defines evolution as "continuous progressive change, according to certain laws, by means of resident forces." ("Evolution and Its Relation to Religious Thought," p. 9.) In other words, evolution is the gradual, continuous and progressive development of all life in its present complex forms, including human life, from one or a few simple forms or mi-

nute germinal vesicles, and these in turn from non-living matter, by means of resident forces.

Organic evolution begins with the appearance on the globe of a single particle of living protoplasm. Darwin speaks of a few forms or one. ("Origin of Species," p. 505.) Huxley says: "If all living beings have been evolved from pre-existing forms of life, it is enough that a single particle of living protoplasm should once have appeared on the globe, as the result of no matter what agency. In the eyes of a consistent evolutionist, any further independent formation of protoplasm would be sheer waste." ("Anatomy of Invertebrated Animals," p. 40.)

There are many varieties of evolutionists holding widely separated views. Darwin, making room for the Creator to account for the ori-

gin of life to the extent of one or a few forms ("Origin of Species," p. 505), applies the principle of evolution to the development of all organic life, vegetable, animal and even human life with its mental, moral and spiritual faculties. Huxley accounts for the origin of life by spontaneous generation or through some other agency, and applies the theory of evolution to the development of all organic life, introducing, however, the power of the Creator to account for certain of the higher faculties of man. Wallace quotes Huxley as saying: "One thing which weighs with me against pessimism, and tells for a benevolent Author of the universe, is my enjoyment of scenery and music. I do not see how they can have helped in the struggle for existence. They are gratuitous gifts." (Wallace, "Darwinism," p. 478.)

Wallace himself adheres "to continuity of physical and mental evolution," but at "three distinct stages of progress from the inorganic world of matter and motion up to man, when some new cause or power must necessarily have come into action," he introduces "an unseen universe, a world of spirit, to which the world of matter is altogether subordinate." (Wallace, "Darwinism," pp. 474-478.) Prof. Ernst Haeckel, on the other hand, says that the best definition of evolution is the "non-miraculous origin and progress of the universe," declaring that if the Creator is admitted at any one point, He may as well be admitted all along the line.

There are those who believe that evolution has gone forward from the simplest to the most complex forms of life by incredibly slow

and gradual changes. There are others who hold that the evolutionary process has been one of crises and catastrophes with sudden appearances and disappearances of certain forms, and with long intervening periods of comparative inactivity and stagnation. In explaining the exceeding rareness of transitional forms, Le Conte says: "I believe that the true reason of this is that the steps of evolution are not always uniform. Nearly all evolutionists have assumed, and even insisted, on uniformity, as the opposite of catastrophism and of supernaturalism, and, therefore, as essential to the idea of evolution. They say that the constancy of the action of the forces of change necessitates the uniformity of the rate of change. But, in fact, this is not always, nor even usually, true. Causes or forces

are constant, but phenomena everywhere and in every department of nature are paroxysmal." ("Evolution and Its Relation to Religious Thought," pp. 257, 258.)

There are those who think of evolution in terms of progress. Professor Conklin, of Princeton University, emphasizes this view. He says: "The past evolution of the human race has been guided by the elimination of the unfit, whether physical, intellectual or social, and the future progress of the race must depend on this same process." Again he says: "In particular instances, simplification and degeneration have occurred, but, in the main, evolution has been progressive; that is, it is marked by increasing complexity of structure, functions and adaptations." ("Evolution of Man," p. 159.) On the other hand, there are those who in-

sist that we should not think of evolution in terms of progress, but merely in terms of adjustment. Prof. Albert G. Keller, of the Yale University, for instance, says: "It is one of the common misconceptions about evolution, and one into which Henry Adams fell, that it means progress. It means adjustment only. . . . The fact is that the terms progress and retrogression, as their etymology indicates, imply that the user of them has selected some center of operations from which he can infallibly adjudge what is 'pro' and what is 'retro.' He is at liberty, in free countries, to do this for himself, and to try to persuade others that he is right, and, sometimes, whole groups can agree on what is progress and what is not, but it is generally impossible to get extended unanimity as to the identity of

'forward' and 'backward.' . . . But this whole difficulty is escaped in the case of evolution, if we consent to view that process as it is, and do not, in our straining after the assessment of things as progressive, hug to ourselves the misconception that evolution and progress are synonymous." ("The Evolution of Man," pp. 126, 127.)

Comparing all these views of evolution, some of which are radically different, held in more or less modified forms by evolutionists in general, it is very evident that there is no "scientifically demonstrated" theory, nor even what might be called a consensus of scholarship, on so fundamental a principle as the derivation of life on the globe in its many complex forms from one or a few simple forms.

II.

The Origin of Life.

PROFESSOR TYNDALL affirms that in material atoms reside the "promise and potency of life." Huxley admits that he finds no record of the commencement of life, but affirms his "philosophical faith" in "the evolution of living protoplasm from non-living matter." (Lull, "Evolution of the Earth," p. 107.) He says: "Looking back through the prodigious vista of the past, I find no record of the commencement of life, and, therefore, I am devoid of any means of forming a definite conclusion as to the conditions of its appearance. Belief, in the scientific sense of the word, is a serious matter and needs

strong foundations. To say, therefore, in the admitted absence of evidence, that I have any belief as to the mode in which the existing forms of life have originated, would be using words in a wrong sense. But expectation is permissible where belief is not, and if it were given to me to look beyond the abyss of geologically recorded time, to the still more remote period when the earth was passing through physical and chemical conditions which it can no more see again than a man can recall his infancy, I should expect to be a witness of the evolution of living protoplasm from non-living matter. I should expect to see it appear under forms of great simplicity, endowed, like existing fungi, with the power of determining the formation of new protoplasm from such matters as ammonium carbonates, oxalates and

tartrates, alkaline and earthy phosphates and water, without the aid of light. That is the expectation to which analogical reasoning leads me, but I beg you once more to recollect that I have no right to call my opinion anything but an act of philosophical faith." Again Huxley says: "If the hypothesis of evolution is true, living matter must have originated from non-living matter, for, by the hypothesis, the condition of the globe was at one time such that living matter could not have existed in it, life being entirely incompatible with the gaseous state. But, living matter once originated, there is no necessity for another origination, since the hypothesis postulates the unlimited, though, perhaps, not indefinite, modifiability of matter." ("Anatomy of Invertebrated Animals," p. 41.)

Joseph Le Conte, although not affirming his faith in the spontaneous generation of life, and denying that the truth of evolution and that of spontaneous generation must stand or fall together, says: "If life did once arise spontaneously from any lower forces, physical or chemical, by natural process, the conditions necessary for so extraordinary a change could hardly be expected to occur but once in the history of the earth. They are, therefore, now, not only unreproducible, but unimaginable." (Evolution and Its Relation to Religious Thought," p. 14.) Surely one might be pardoned for wondering why it was that nature, so prodigal in the reproduction of the germs of life, should have been so frugal as to produce only one original living cell when so much depended on its preservation and propagation.

Lorande Loss Woodruff, professor of biology in Yale College, says: "We thus reach the general conclusion that, so far as human observation and experimentation go, no form of life arises to-day except from pre-existing life. But since life is present on the earth now, . . . we have to consider the following alternative: Either life was transported to this planet from some other part of the universe, or life arose spontaneously from non-living matter at one period at least in the past as a natural result of the evolution of the earth and its elements." ("Evolution of the Earth," Lull, pp. 93, 94.) Then he goes on to quote the opinions of the various scientists supporting one or the other of these views.

Prof. Harry Burr Ferris says: "Evolution must likewise assume that under some favorable

condition the earliest living forms were evolved from the inorganic world." ("The Evolution of Man," p. 78.)

There is, however, positively no evidence that life ever originated from non-living matter. Woodruff, speaking of Henry Baker as "the versatile microscopist of the Royal Society," quotes him as saying: "Nothing now seems more contrary to reason than that chance and nastiness should give a being to uniformity, regularity and beauty, . . . and create living animals. . . . This, however, was the opinion, not only of the ignorant and illiterate, but of the most learned, grave philosophers of preceding ages, and would probably still have been taught and believed had not microscopes discovered the manner how all these things are generated, and restored to God the glory of His

own amazing work." (Lull, "Evolution of the Earth," pp. 91, 92.)

Edmund B. Wilson, of Columbia University, says: "As early as 1855 Virchow positively maintained the universality of cell-division, contending that every cell is the offspring of a pre-existing parent cell. . . . At the present day this conclusion rests upon a foundation so firm that we are justified in regarding it as a universal law of development." ("The Cell in Development and Inheritance," p. 10.) And Woodruff quotes Wilson as saying: "The study of the cell has on the whole seemed to widen rather than to narrow the enormous gap that separates even the lowest forms of life from the inorganic world." (Lull, "Evolution of the Earth," p. 94.) Woodruff further declares: "All will undoubtedly admit that we are at the

present time utterly unable to give an adequate explanation of the fundamental life processes in terms of physics and chemistry. Whether we shall ever be able to do so is unprofitable to speculate about, though certainly the twentieth century finds relatively few representative scientists who really expect a scientific explanation of life ever to be attained, or who expect that protoplasm will ever be artificially synthesized." (Lull, "Evolution of the Earth," p. 95.)

In answering the question, "Is life upon the earth something new?" Henry Fairfield Osborn says: "The more modern scientific opinion is that life arose from a recombination of forces pre-existing in the cosmos." He adds: "We may express as our own opinion, based upon the application of uniformitarian evolutionary principles,

that when life appeared on the earth some energies pre-existing in the cosmos were brought into relation with the chemical elements already existing." He believes "that the origin of life, as well as its development, will ultimately prove to be a true evolution within the pre-existing cosmos." But he admits that the "question is one which has not yet been answered by science." ("The Origin and Evolution of Life," Osborn, pp. 1, 2.) And again he says: "The mode of the origin of life is a matter of pure speculation." ("Origin and Evolution of Life," p. 67.) Huxley says: "Of the causes which have led to the origination of living matter, then, it may be said, we know absolutely nothing." ("Anatomy of Invertebrated Animals," p. 41.) Darwin admits that "science as yet throws no light on the problem of

the essence and origin of life." ("Origin of Species," p. 96.) Woodruff quotes Derham as saying that "spontaneous generation is a doctrine so generally exploded that I shall not undertake to disprove it." Woodruff says: "Indeed, it is difficult to overestimate the importance of [Francesco] Redi's conclusion from either the theoretical or practical viewpoint, for with it was definitely formulated the theory, which has gained content and impetus as the years have rolled on, that matter does not assume the living state, at the present time at least, except under direct influence of pre-existing living matter." (Lull, "Evolution of the Earth," p. 91.) "Thus," says Woodruff, "biologists are at the present time absolutely unable, and probably will be for all time unable, to obtain empirical evidence on any of the

crucial questions relating to the origin of life on the earth." (Lull, "Evolution of the Earth," p. 107.) And Professor Lull, of Yale University, says: "The first great crisis in the evolution of organic beings was the origin of life; the marvelously subtle combinations attained by certain very familiar inorganic elements increasing their molecular complexity until a substance was produced endowed with the attributes of life. Of this momentous event we have no record." (Lull, "Evolution of the Earth," p. 112.)

Clearly, then, evolution gives us no explanation of the origin of life. It is thus forced to postulate the existence of living matter endowed with that power of hereditary transmission and with that tendency to vary found in all such matter. (Huxley, "Anatomy of Invertebrated Animals," p. 41.)

III.

The Origin of Conscious Life.

As to the origin of conscious life, there is the same uncertainty. The wide and deep gulf between the vegetable and animal kingdoms has never been bridged over. Evolution merely takes a flying leap across this broad and mysterious chasm. As to this transition, Darwin says: "Analogy would lead me one step further; namely, to the belief that all animals and plants are descended from some one prototype." He admits that "analogy may be a deceitful guide," but then goes on to say: "Nevertheless, all living things have much in common, in their chemical composition,

their cellular structure, their laws of growth, and their liability to injurious influences. . . . If we look even to the two main divisions—namely, to the animal and vegetable kingdoms—certain low forms are so far intermediate in character that naturalists have disputed to which kingdom they should be referred. . . . Therefore, on the principle of natural selection with divergence of character, it does not seem incredible that, from some such low and intermediate form, both animals and plants may have been developed, and, if we admit this, we must likewise admit that all the organic beings which have lived on this earth may be descended from some one primordial form." ("Origin of Species," p. 500.)

But Alfred Russell Wallace made a full and frank admission of this abysmal break in the operation of

evolution. He said: "The next stage is still more marvelous, still more completely beyond all possibility of explanation by matter, its laws and forces. It is the introduction of sensation or consciousness, constituting the fundamental distinction between the animal and vegetable kingdoms. Here all idea of mere complication of structure producing the result is out of the question. We feel it to be altogether preposterous to assume that at a certain stage of complexity of atomic constitution, and as a necessary result of that complexity alone, an ego should start into existence, a thing that feels, that is conscious of its own existence. Here we have the certainty that something new has arisen, a being whose nascent consciousness has gone on increasing in power and definiteness till it has

culminated in the higher animals. No verbal explanation—such as the statement that life is the result of the molecular forces of the protoplasm, or that the whole existing organic universe from the Ameba up to man was latent in the fire mist from which the solar system was developed—can afford any mental satisfaction, or help us in any way to a solution of the mystery." (Wallace, "Darwinism," p. 475.) Of this crisis Professor Lull, of Yale, says: "The definite fossil record thus established shows us that evolution of the great invertebrate groups occurred largely before the close of the Proterozoic, hence we may not speak confidently of cause and effect." (Lull, "Evolution of the Earth," p. 113.) It is not even known just when animal life first appeared, much less have we any scientific evidence as

to how it came to be. Henry Fairfield Osborn says: "We have no idea when the first unicellular animals known as Protozoa appeared." ("The Origin and Evolution of Life," p. 111.)

Thus, if the animal kingdom had its origin in the vegetable, or both in some lower and intermediate form, no trace of this marvelous transition is to be found. There is no scientific proof of it.

IV.

The Origin of Specific Forms of Life.

THE origin of species in the animal kingdom presents another difficult problem. In the animal kingdom, as in the vegetable, we find quite distinct classes, orders, families, genera and species. Evolution seeks so to relate all these as to prove that they have a common origin, that all living forms have been derived through a process of gradual modification by natural selection or otherwise, from one or a few simple forms of animal life. For confirmation of this hypothesis appeal is made to morphology, embryology,

geology and other departments of science. As we study the different species, two facts are apparent: First, the tendency toward rapid multiplication through reproduction, and, secondly, the tendency toward variation in color, form, size and structure. Various causes are assigned to account for these variations and their supposed development into new species; such as natural selections, sexual selection, habit, use and disuse of organs, external conditions, such as climate and heredity. With reference to hereditary modification, there are two distinct schools, those who, with Darwin, believe that only congenital variations are transmitted to the offspring, and those who, with Lamarck, contend that acquired as well as congenital modifications are thus transmitted. Darwin relies largely upon his

theory of natural selection to account for the origin of species. He bases his theory on rapid multiplication, the tendency to vary and the struggle for existence. Perhaps it would be well to state his view in his own words: "Can it be thought improbable, seeing that variations useful to man have undoubtedly occurred, that other variations useful in some way to each being in the great complex battle of life, should occur in the course of many generations? If such do occur, can we doubt (remembering that many more individuals are born than can possibly survive) that individuals having any advantage, however slight, over others, would have the best chance of surviving and procreating their kind? On the other hand, we may feel sure that any variation in the least degree injurious would

be rigidly destroyed. This preservation of favorable individual differences and variations, and the destruction of those which are injurious, I have called 'Natural Selection' or the 'Survival of the Fittest.'" ("Origin of Species," p. 74.) May I interject here the suggestion that if this statement were strictly true, certain species of moth that have the habit of playing with the fire should long since have become extinct, for that this habit is highly injurious is beyond question? Again he says: "It may metaphorically be said that natural selection is daily and hourly scrutinizing, throughout the world, the slightest variations, rejecting all those that are bad, preserving and adding up all that are good; silently and insensibly working whenever or wherever opportunity offers, at the improvement of each organic

being in relation to its organic and inorganic conditions of life." ("Origin of Species," p. 77.) He thus endows this child of his fancy, which he calls "Natural Selection," with little short of omnipresence, omniscience and omnipotence, so far as the organic world is concerned.

Many difficulties at once suggest themselves. Darwin himself admitted: "That many and serious objections may be advanced against the theory of descent with modification, I do not deny."

1. No attempt whatever is made to account for the cause or causes of these slight differences that are constantly manifesting themselves. Often they are attributed to chance. Again, it is said that they are the result of the operation of unknown laws. The point to bear in mind is that natural selection is power-

less until these variations occur, and, therefore, does not, in any way, account for their first appearance. Le Conte says: "It is evident, then, that if we, with Darwin, take natural selection as the most important known factor, the really most important cause of evolution is the cause of varieties. This is the unknown fundamental factor." ("Evolution and Its Relation to Religious Thought," p. 80.)

2. The theory presupposes an interminable number of intermediate and transitional forms connecting all these species together. But, as a matter of fact, if such forms ever existed, they have mysteriously disappeared without leaving any trace of their existence. They are certainly not to be found among the living forms in the earth to-day. The fact that clearly defined species, genera, families, orders and

classes are recognized by all scientists is sufficient evidence of the absence of these intermediate forms which would by slight gradations blend one species into another. Even Darwin admitted: "There are two or three millions of species on the earth. . . . But it must be said to-day that in spite of all the efforts of trained observers, not one change of one species into another is on record." ("Life and Letters," Vol. III., p. 25.)

Therefore, we must look to past ages for confirmation of this view of a gradual and uniform development from a few generalized forms to the present countless specialized forms of life. But Professor Lull, in speaking of the evolution from water to land animals, says: "The waters, while a very necessary stimulus to chordate evolution, afford too restricted an environ-

ment for the evolution of higher forms, and, as a consequence, all vertebrates, whose ancestry can be traced through an unending line of water inhabitants since the beginning of life on the earth, are but fishes, and, no matter to what degree they have been specialized, they could not have risen, nor can they ever rise, to a higher plane. The emergence from the limiting waters to the limitless air was absolutely essential to further development, and constitutes one of the greatest crises in organic evolution. To know the route of such migration is of the utmost importance if we could find a cause." (Lull, "Evolution of the Earth," pp. 119, 120.) He goes on further to say: "The question of the evolution of the pentadactyl hand and foot, which is the vertebrate standard, from the ancestral fish fin is not fully

solved." (Lull, "Evolution of the Earth," p. 123.) In speaking of the evolution of mammals, he says: "The record of the actual transition, however, is as yet unrevealed." (Lull, "Evolution of the Earth," p. 128.) In speaking of the evolution of birds, he says: "There is again no fossil record of transitional forms." (Ibid. p. 129.)

As a result of the most diligent search in fossil formations up to the present time, some interesting facts are revealed:

(1) We find that the different species, even in the oldest fossil formations, are as clearly marked off from one another as among living forms. (Wallace, "Darwinism," p. 376.) On this point Le Conte says: "In the earliest fauna known, the primordial (for if there was life in the archæan, it was not yet differentiated into fauna), all

the great departments, except the vertebrates, seem to have been represented." ("Evolution and Its Relation to Religious Thought," p. 146.)

(2) We also find that new species often appear suddenly and in perfection of type, and then sometimes disappear with equal suddenness. In speaking of the rise and extinction of dinosaurs, Lull says: "What was the physical cause of this extinction, which is believed to have occurred in the Comanchian, we do not know, for there is little evidence of a climatic change." (Lull, "Evolution of the Earth," p. 131.) Again he says: "So far as our records go, not one dinosaur of all the hosts that were, survived the Mesozoic, for undoubted post-cretaceous rocks have not yielded a fragment of their remains. Why they became extinct

no one knows." ("Evolution of the Earth," Lull, p. 132.) After the extinction of dinosaurs, the larger mammals suddenly appeared, and rapidly spread and flourished. "They are first actually recorded in the upper Triassic rocks of three rather remote localities, North Carolina, Germany and South Africa, and are already differentiated in dietary habits." (Lull, "Evolution of the Earth," p. 133.) But during the Mesozoic reign of dinosaurs, mammals were suppressed. "The archaic mammals barely survived the Eocene. . . . Early in the Eocene, however, are suddenly seen the vanguard of an army of invaders, none of which seem directly related to the native mammals, appearing simultaneously in North America and Europe." (Lull, "Evolution of the Earth," p. 135.)

Of the appearance and disappearance of species, Le Conte says: "A species may indeed pass out gradually, and another come in gradually, so far as number and vigor of individuals are concerned, but, in specific character, they may be said, usually, at least, to come in suddenly, with all their characters perfect, remain unchanged throughout their whole range, and pass out suddenly at its borders." ("Evolution and Its Relation to Religious Thought," p. 218.)

(3) We find, further, that many forms have remained unchanged, unaffected by natural selection or any other process through enormous periods of time, a multitude especially of lowly organized forms remaining from the earliest known dawn of life to this present day. ("Origin of Species," pp. 118, 119 and 347.) For instance, the Lin-

gula, a brachiopod, found in the primordial, has continued through all geological time down to the present with its characters unchanged. Henry Fairfield Osborn says: "A most significant biological fact is that certain of the primitively armored and sessile brachiopods of the Cambrian Seas have remained almost unchanged generically for a period of thirty million years, down to the present time. These animals afford a classic illustration of the rather exceptional condition, known to evolutionists as balance, resulting in absolute stability of type. Then he cites as examples the Lingula and the Terebratula, belonging to widely differing families of brachiopods." ("The Origin and Evolution of Life," pp. 121, 122.)

(4) We find, moreover, that the total number of species has not

appreciably increased since the middle of the Tertiary period. Such an increase would naturally have occurred according to the theory of constant production of new species.

The assertion is made, however, that in a few instances we do have fossil evidence of the development of higher types from lower through gradual modification, and the ancestry of the horse is cited as a case in point. We are told that "the horse tribe, commencing with an early four-toed ancestor in the Eocene age, has increased in size and in perfect adaptation of feet and teeth to a life on open plains, and has reached its highest perfection in the horse, the ass, and the zebra." (Wallace, "Darwinism," p. 120.) There are three things worthy of notice in this supposed evolution of the horse: First, that,

so far as structure is concerned, the change is from a complex to a more simple form, from four toes to one, and from complexity to simplicity in the bones of the legs. Second, that from the protohippus to the pliohippus there is a complete jump, from three toes to a single toe or hoof. Third, that, in any case, it is the evolution of a horse from a horse.

Why is it that, everywhere the boundary-line between species has been crossed, the connecting forms between the species have not only become extinct, but have so completely disappeared as to leave no evidence of their existence in fossil form? For in no single instance, so far, have transitional forms been found of such a character as to make out a clear and certain case.

In the face of all the facts, it would be rash to assume that

geology furnishes evidence of the existence of transitional forms, or gives proof of a gradual and uniform development from simple forms to complex organic life by means of resident forces.

3. Another difficulty that presents itself is the fact that there is a remarkable difference between varieties and species with respect to fertility when crossed. As a rule, varieties, when crossed, are fertile, and their progeny continue to be so, while species, when crossed, are usually infertile, and where hybrid offspring are produced they are absolutely infertile. (Wallace, "Darwinism," p. 153; Darwin, "Origin of Species," p. 23.) This is true even in such closely allied species as the horse and the ass. "The mule still stubbornly flouts the theory of the transmutation of species."

4. Two other phenomena difficult to reconcile with the theory of descent with modification through natural selection have been referred to as reversed adaptation and alternate adaptation. Osborn says: "In no less than eleven out of eighteen orders of reptiles reversed adaptation to a renewal of aquatic life took place;" for instance, "in the passage from the reptilian foot into the fin of the aquatic reptile and with equal clearness in the passage of the wing of the flying bird into the fin of the swimming bird." He goes on to say: "Still more remarkable than the law of reversed adaptation is that of alternate adaptation." He gives as an illustration the leatherbacks, a highly specialized type of sea turtles, which supposedly passed from land to marine animals and then through various

transitions back again to land animals. ("The Origin and Evolution of Life," pp. 198-202.)

5. There is as yet no satisfactory explanation of the development of such organs as the wing, the hand, the foot or the eye, even granting that thousands or millions of generations were consumed in the process. Natural selection does not account for them, because natural selection is based on the usefulness of variations to the organism, and in what way an incipient wing, especially in the early stages, could be of use to any creature it is impossible to see. And it is even more incredible that an incipient eye could be of any service whatsoever. Le Conte says: "But not only does not natural selection explain the origin of varieties, but neither can it explain the first steps of advance toward usefulness.

An organ must be already useful before natural selection can take hold of it to improve it. It can not make it useful, but only more useful." And then he adds: "It would seem that many organs must have passed through this incipient stage, in which their use was prospective." ("Evolution and Its Relation to Religious Thought," pp. 270, 271.) All other theories of gradual development are just as impotent to account for these organs as is the theory of natural selection. Even Wallace says: "It is evident that these peculiarities had their origin at a very remote period of the earth's history, and no theory, however complete, can do more than afford a probable conjecture as to how they were produced." (Wallace, "Darwinism," p. 7.) Furthermore, in considering the possibility of the evolution of

such an organ as the eye through incredibly slow changes we should not forget that the Cephalopods found in the Primordial, in the very first fossil remains, supposedly thirty to fifty million years old, had fully developed eyes approaching in complexity the eyes of man. One can not forbear wondering how many billions of years would have been required for the gradual development of the eye prior to that time. That this is a serious difficulty is evident from the fact that Darwin said: "If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down." ("Origin of Species," p. 174.)

6. And how shall we account for the instinct of the honey-bees

through any process of development by gradual change or modification? An instinct so wonderful as to challenge the enthusiastic admiration of every thoughtful man! They make the cells of the comb of precisely that shape, according to mathematicians, which with the least consumption of materials will afford the largest capacity with the necessary strength, and all this is done by multitudes of bees working in the darkness of the hive. ("Origin of Species," p. 260.) Their instinct for gathering and storing the honey is little less remarkable. How could such an instinct have been gradually acquired or slowly developed? It is inconceivable to me, especially in view of the fact that the bees who do all the work are sterile females, thus having no power to transmit these instincts. Nor should it be for-

gotten that both the fertile males and females, through whom they are produced, widely differ in both instinct and structure from the workers, and are totally lacking in the instincts of the neuters, and, therefore, are unable to transmit them to their progeny. Similar difficulties present themselves when we consider the wonderful instincts of the beaver, the water spider and the ant. Even Huxley was compelled to admit: "After much consideration, and with assuredly no bias against Mr. Darwin's views, it is our clear conviction that as the evidence now stands it is not absolutely proved that a group of animals, having all the characteristics exhibited by species in nature, has ever been originated by selection, whether natural or artificial." ("Lay Sermons," p. 295.)

V.

The Origin of Self-conscious Life.

WE are confronted, however, with our most difficult problems in the effort to demonstrate that man had his origin in the lowest form of animal life, and has come to his present erect carriage and exalted character and attainments by slow and gradual modification through natural selection or some other process.

That there is a general resemblance between the structure of man's body and that of certain of the lower animals, especially the anthropoid apes, there can be no question. It is further true that

the human embryo, up to a certain stage, is very much like that of animals, at a certain stage resembling that of the dog and later that of the ape. Furthermore, there is no doubt that the locations of the brain centers of control in man correspond to those of certain animals, and that there are certain diseases common to man and some of the lower animals. It is contended that the human embryo, from the egg on, is but a recapitulation of man's ancestral history. Thus Professor Conklin says: "Indeed, development from the egg recapitulates some of the main stages of evolution; in it we see evolution repeated before our eyes." ("Evolution and the Bible," by Conklin.) But as Professor Fairhurst says: "It is well known, however, that there are radical differences between the embryos of vertebrates and inverte-

brates. Worms and other articulates in embryo lie doubled backwards around the yolk, while all vertebrates are doubled in the opposite direction. According to the theory that the embryonic condition is a recapitulation of the stages of organic evolution, this fundamental fact of invertebrate embryology ought to have been preserved by the vertebrate, and it ought, at least, to pass through a stage of development bent backward around the yolk. Evolution gives no account of this reversal of position by the vertebrates." ("Organic Evolution Considered," p. 145.) "Why should the whole first half of the history of evolution be not even hinted at in the epitome?" ("Organic Evolution Considered," p. 147.)

It is also to be remembered that the young mammal is never like

the worm, the fish or the reptile. The most that can be said is that in some respects he is like the young of these in various stages. Baer says that he can tell the difference between the embryo of the common fowl and the duck on the second day. ("Principles of Biology," p. 1.) Prof. A. Agassiz says: "Anything beyond a general parallelism is hopeless." ("The Other Side of Evolution," Alex. Patterson, p. 50.) And Prof. J. Arthur Thomson, of Edinburgh, says: "Recapitulation is due to no dead hands of the past, but to physiological conditions which we are unable to discover." ("Outline of Zoology," p. 63.) Huxley says: "In practice, however, the reconstruction of the pedigree of a group from the developmental history of its existing members is fraught with difficulties. It is highly probable that the series

of developmental stages of the individual organism never presents more than an abbreviated and condensed summary of ancestral conditions; while the summary is often strangely modified by variation and adaptation to conditions, and it must be confessed that in most cases we can do little better than guess what is genuine recapitulation of ancestral forms, and what is the effect of comparatively late adaptations. The only perfectly safe foundation for the doctrine of evolution lies in the historical, or rather the archæological, evidence that particular organisms have arisen by the gradual modification of their predecessors, which is furnished by fossil remains." ("Anatomy of Invertebrated Animals," pp. 42, 43.)

Thus it would seem that embryology does not furnish evidence

sufficient to satisfy the mind of so ardent and keen an evolutionist as Huxley.

As to fossil remains, none have been found which could be considered as transitional forms between the anthropoid apes and man. All evolutionists are agreed that "no existing species of anthropoid apes could have been our ancestors." They agree that these apes and we "are collateral descendants from ape-like species living far, far back in geologic time." (Keene, "I Believe in God and Evolution," p. 87.) But the "man-like ape," "the ape-like man" and "man's ape-like progenitor" are all creatures of the imagination. Geology knows nothing of them. Darwin acknowledged that "connecting links have not hitherto been discovered." ("Descent of Man," p. 166.) And it may be added that to this day

none has been discovered. He admits that "the great break in the organic chain between man and his nearest allies can not be bridged over by any extinct or living species." ("Descent of Man," p. 177.) Professor Huxley says: "In conclusion, I may say that the fossil remains of man hitherto discovered do not seem to me to take us appreciably nearer to that lower pithecoid form by the modification of which he has probably become what he is." (Wallace, "Darwinism," p. 456.)

Wallace says: "A large population spread over an extensive area is also needed to supply an adequate number of brain variations for man's progressive improvement. But this large population and long-continued development in a single line of advance renders it the more difficult to account for the complete

absence of human or pre-human remains in all those deposits which have furnished in such rich abundance the remains of other land animals." (Wallace, "Darwinism," p. 458.)

Remains of prehistoric man thus far discovered have been very meager (indeed, they might all be put in a barrel), and have utterly failed to justify faith in man's ape-like ancestry. We have heard much of some of these remains.

1. The Trinil ape-man of Java, generally referred to as "Pithecanthropus," is considered the oldest of these remains, and is declared to be approximately five hundred thousand years old. The fragments consist of a skull-cap, three teeth and a left femur. They were found scattered through twenty yards of space, and were not all discovered at the same time.

The skull-cap indicates inferior intelligence, but the cranial capacity was as great as that of some men to-day, and twice as large as that of an ape.

The straightness of the thigh-bone indicates that his "posture must have been fully as erect as in modern man."—*Lull.*

"The teeth of the Java man are also of a distinctly human type."—*Lull.*

"Dr. Dubois, a Dutch army surgeon, the owner of the fragments, will not permit their further study by his colleagues."—*Lull.*

2. Of the Heidelberg man only a lower jaw was found, but this was complete. It is heavy and massive, with receding chin.

"The teeth are regularly placed and the canines are not in any way bestial in their development, less so, indeed, than in some modern

men."—*Lull.* He is supposed to be about four hundred thousand years old.

3. In the case of the Piltdown man, fragments of a skull, a ramus of the jaw with several molars in place, a canine tooth and two nasal bones were found.

The cranium is very thick walled, but the "skull was nicely balanced on the neck, as in ourselves, implying an erect posture, a rather modern-looking cranium."—*Lull.*

The jaw and teeth are simian in character, but it is by no means certain that they belong with the skull. Henry Fairfield Osborn says: "Even at this writing (1918), it is not finally agreed that the Piltdown jaw belongs with the Piltdown skull, because the new evidence brought forward by Dr. Smith Woodward, although strong, is not deemed entirely conclusive."

("Men of the Old Stone Age," p. 14.) Lull says: "These remains occurred so near the present land surface that had they not shown evidence of great structural antiquity, their authenticity would be greatly in doubt." They are supposed to be between two and three hundred thousand years old.

4. Of the type of man known as Neandertal, numerous remains have been found at various times.

They indicate a man of low stature, probably about five feet three inches high.

The skull is very large, with a cranial capacity considerably exceeding that of the average modern man.

He was not as erect in carriage as Pithecanthropus or the Piltdown man.

5. The Rhodesian man was more advanced than the Neandertal man.

Of him a skull and part of a lower jaw were found.

Keith says the estimated content of the skull "falls between a modern English and an ancient French skull."

"The head was well balanced on the neck, and this, together with the straight shin, and the character of the ends of the thigh-bone, imply a fully erect posture."—*Lull.* "The palate is so broad and rounded that it is less ape-like than in the modern negro."—*Lull.*

6. The Cro-magnon man is truly Homo sapiens of the highest type. The height averages six feet one and a half inches in young men and six feet four and a half inches in the old men.

"The skull is very large, even the female brain exceeding that of the average male to-day." "The skull is entirely modern. . . . Nor is the

brain in any way distinctive from that of existing man. . . . The facial angle is equal to that of the highest modern man."—*Lull.*

Most of the above prehistoric remains were taken from a lecture on "The Antiquity of Man," by Professor Lull.

What meager evidence we have, then, goes to show that prehistoric man was as erect in carriage and had about as good a head on his shoulders as the average modern man.

Professor Lull, in giving a summary of the recorded changes in prehistoric man, says of him: "Stature increasing and becoming more erect, although the earliest known hominid, Pithecanthropus, was fully upright." (Lull, "Evolution of Man," p. 37.) In other words, so far as we have any knowledge of prehistoric man, he was

always as upstanding as Homo sapiens to-day. He goes on to add: "As yet, there is no actual connection with ape-like forms ancestral to both the modern apes and man." (Lull, "Evolution of Man," p. 38.) One more paragraph from Lull will show how vain is the effort to prove from prehistoric remains man's pithecoid ancestry. He says: "Supposedly associated with the Foxhall flints" (which are placed in the upper Pliocene) "was found a human jaw which unfortunately can not now be located. If it could be found, and the certainty of association be determined, it would far antedate both that of Piltdown and of Heidelberg. The figure which Osborn published of this jaw, from the original, by Collyer, in 1867, is remarkable in that it is the jaw of Homo sapiens, if correctly drawn, and not primitive at all. But this

is exactly what Keith's arguments would lead us to expect." (Lull, "Evolution of Man," p. 37.) Keith's contention is that Homo sapiens appeared at a remote time, flourished for awhile, and disappeared, to be replaced by the more primitive, but not ancestral, Neandertal man of Mousterian time." (Lull, "Evolution of Man," p. 35.) That is to say, the Heidelberg man, the Java man and the Piltdown man are not connecting links between modern man and his supposed ape-like ancestors, because Homo sapiens was on the scene when they arrived, if not before.

So far as historic man is concerned, there is no evidence of marked progress or development. Professor Conklin says: "In bodily evolution man has made no very marked progress during the last

twenty thousand years at least. . . . The physical evolution of man has slowed down almost to a standstill. . . . Since the times of the Cro-magnon race, probably twenty thousand years ago, there has been no marked increase in man's cranial capacity, and probably little or no increase in his inherent intellectual ability. . . . The only great progress which the human race has made during the past twenty thousand years has been social, and, so far as we can now see into the future, the progressive evolution of mankind must depend to a great extent on society." (Lull, "Evolution of Man," pp. 162-64.)

Pres. James Rowland Angell, of Yale, in speaking of the evolution of intelligence, says: "So far as we can judge by the evidence in historic times, there is no reason whatever to suppose that the na-

tive intellectual abilities of the average American citizen are in any way superior to those of the Egyptians four thousand years before Christ, or the Homeric Greeks, or to others of the peoples of that general period in the Mediterranean basin, records of whose civilization have come more or less completely to our knowledge. . . . In other words, since the period of historic records, there is no convincing evidence of marked development in human intelligence, despite the enormous advances made in the paraphernalia of civilization." (Lull, "Evolution of Man," p. 115.)

How, then, shall evolution account for those faculties of man which absolutely distinguish him from all the rest of the animal kingdom—his mental endowments, articulate speech, his power of ab-

stract reasoning, his appreciation of the beauties of nature, his enjoyment of music, his moral sense, conscience, his dominion over the rest of creation, his religious faith, his belief in God? Even Lull admits: "The intelligence of man so far surpasses that of his nearest competitors, the anthropoids, that the mental gulf between them is immeasurable." (Lull, "Evolution of Man," p. 38.)

Wallace frankly concedes that this is a gulf which evolution can not bridge. He says: "We find the most pronounced distinction between man and the anthropoid apes in the size and complexity of his brain." He then quotes Huxley's words: "It may be doubted whether a healthy human adult brain ever weighed less than thirty-one or thirty-two ounces, or that the heaviest gorilla brain has exceeded

twenty ounces," although "a full-grown gorilla is probably pretty nearly twice as heavy as a Bosjes man, or as many an European woman." The difference is even more marked when we remember that the average human brain weighs forty-eight or forty-nine ounces, even if the average ape brain weighs as much as eighteen ounces, or only two ounces less than the largest gorilla's. (Wallace, "Darwinism," p. 458.) Wallace concludes "that we possess intellectual and moral faculties which could not have been so developed (*i. e.,* under the law of natural selection), but must have had another origin, and for this origin we can only find adequate cause in the unseen universe of spirit." (Wallace, "Darwinism," p. 478.) And even Huxley, agnostic though he claimed to be, as already quoted,

said: "One thing which weighs with me against pessimism and tells for a benevolent author of the universe, is my enjoyment of scenery and music. I do not see how they can have helped in the struggle for existence. They are gratuitous gifts." (Wallace, "Darwinism," p. 478.)

With reference to the appearance of man, Le Conte makes some very interesting observations. He says: "Next and last, and only with the appearance of man, another entirely different and far higher factor was introduced; viz., conscious, voluntary co-operation in the work of his own evolution, a conscious, voluntary striving to attain an ideal. We have called this a factor, but it is much more than a mere factor, co-ordinate with other factors. It is, rather, a different kind of evolution. It is evolution on a

higher plane and by another nature. As physical nature works unconsciously, using certain factors, so spiritual nature works consciously, co-operating and using the same factors." ("Evolution and Its Relation to Religious Thought," p. 86.) Again he says: "With reason another and infinitely higher factor is introduced, which, in its turn, assumes control, and not only quickens the rate, but elevates the whole plane of evolution. . . . This is by far the greatest change which has ever occurred in the history of evolution." ("Evolution and Its Relation to Religious Thought," p. 87.) And once more he says: "Besides the unconscious evolution by natural laws, inherited from below, there is a higher evolution, inherited from above, indissolubly connected with man's spiritual nature." ("Evolution and Its Rela-

tion to Religious Thought," p. 27.) It is impossible for me to see how these statements can be reconciled with Le Conte's own general definition of evolution as "continuous progressive change, according to certain laws, *by means of resident forces.*"

Dr. William W. Keene, in his recent interesting little brochure on "I Believe in God and Evolution," has this to say: "Human life is the gradual unfolding of a majestic drama, covering æons of time. In its dawn we see man groping his way towards the light, then slowly, but surely, developing his intellectual life, and, finally, how or when we know not how, but doubtless we shall know in the future, in the immortal life, the engrafting by the Creator upon his bodily life of a moral and spiritual life, a soul with a desire to worship, a faculty

of adoration and of communion with his heavenly Father."

Hutchinson, in "This Freedom," aptly remarks: "There is in the study of man nothing more curious or more interesting than the natural bent of an individual mind. An arrow shot to the north and another from the same bow to the south spring not apart more swiftly, or more oppositely, than the minds of two children brought up from one mother in the same nursery. The natural bent of each determines it." ("This Freedom," p. 94.) Hutchinson is right, for there is nothing in all the rest of the animal kingdom comparable to this amazing tendency of men. It is as if a pure-blooded collie, bred to one of her kind, were to find herself the mother of a litter of pups, one of a bulldog, another a pointer, another a setter and still another a fox-terrier. But

such a thing does not happen. Other animals run true to form. The pups of a collie will all have the same general instincts, some to a lesser and others to a greater degree; all will be collies. With man, however, the case is different, for the widest range of ability, tastes and talents and the most surprising differences are often found in the children of the same father and mother.

If the average man presents such staggering difficulties to evolution, how will it account for the genius of such men as Socrates, Plato and Aristotle, of Shakespeare, Milton and Browning, of Newton, Watt, Stephenson and Edison, of Washington, Lincoln and Gladstone? How will it begin to explain the matchless person and character of Jesus Christ, the most stupendous and revolutionary fact of history?

Neither before nor since His day have we anything that approaches Him in perfection and beauty of character. Nor can we conceive of any one yet to be born who will rival Him.

In seeking the final cause and author of all life as we know it, we can do no better than to heed the words of Paul in his address to the Athenians on Mars' Hill: "Whom therefore ye ignorantly worship, him declare I unto you. God that made the world and all things therein, seeing that He is Lord of heaven and earth, dwelleth not in temples made with hands; neither is worshipped with man's hands as though he needed anything, seeing he giveth to all life and breath and all things; and hath made of one blood all nations of men to dwell on all the face of the earth, and hath determined the times before

appointed, and the bounds of their habitation: that they should seek the Lord, if haply they might feel after him, though he be not far from every one of us: for in him we live and move and are." (Acts 17:23-28.)

Just how He made the worlds; the æons of time He took to do it; through what processes He created and developed organic life as we know it to-day; in just what way He made man of the dust of the ground, whether directly or indirectly—all these are fascinating questions worthy of the most careful study. But the final answers will not be had till we enter upon that larger, fuller life in the world to come. For, "now we see in a mirror darkly, but then face to face; now we know in part, but then we shall know fully even as also we are fully known."

"Their rock is not as our Rock,
even our enemies themselves
being judges." —*Deut. 32:31.*

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